

TWEHA®® ADHESIVES FOR BONDING ALUMINUM - SMARTER, FASTER AND MORE DURABLE THAN TRADITIONAL JOINING METHODS

Aluminum is one of the most widely used materials in modern façade construction and industrial engineering. Lightweight, strong, corrosion-resistant, and visually attractive, it offers enormous design flexibility.

However, connecting aluminum components efficiently and reliably remains a technical challenge.

At TWEHA®®, we believe adhesive bonding offers a far superior alternative to traditional joining methods such as:

- Welding;
- Bolting;
- Riveting;
- Mechanical fastening.

Why Adhesive Bonding Is Better for Aluminum

Professional adhesive bonding offers major technical and economic advantages compared to traditional connection systems.

Better Stress Distribution

Unlike screws, bolts, or welds that create concentrated stress points, adhesives distribute forces evenly across the entire bonded surface.

This results in:

- Reduced local stress;
- Less material fatigue;
- Improved long-term durability;
- Better structural performance.

No Damage to the Aluminum Structure

Mechanical fastening and welding permanently affect the aluminum itself.

For example:

- Drilling weakens the structure;
- Welding can deform the material;
- Heat may affect coatings and material properties.

Adhesive bonding avoids these issues completely.

The Aluminum Remains Fully Intact

This preserves both the structural integrity and the visual appearance of the material.

Flexibility for Thermal Movement

Aluminum expands and contracts significantly under temperature changes.

TWEHA® adhesive systems remain elastic and flexible, allowing them to absorb:

- Thermal expansion;
- Vibrations;
- Structural movement;
- Dynamic loads.

This flexibility helps prevent stress-related failures over time.

Better Resistance Against Vibrations and Noise

Compared to rigid mechanical fixings, adhesive bonding offers:

- Improved vibration damping;
- Reduced noise transmission;
- Better fatigue resistance;
- Longer service life.

This makes adhesive bonding highly suitable for:

- Façades;
- Transport applications;
- Industrial constructions;
- Thin panel assemblies.

Faster and Cleaner Installation

Bonding aluminum is often significantly faster than:

- Drilling;
- Welding;
- Mechanical assembly.

In addition, adhesive joints create:

- Clean surfaces;
- Invisible fixings;
- Modern architectural aesthetics.

TWEHA® MetalMate: No Primer Required

One of the major innovations from TWEHA® is TWEHA® MetalMate

A specially developed adhesive system for aluminum bonding that: Does Not Require a Separate Primer. This provides enormous practical advantages on-site.

Why No Primer Is Better

Traditional aluminum bonding systems often require aggressive primers before the adhesive can be applied. With TWEHA® MetalMate, the primer technology is already: Integrated into the Adhesive Itself.

This offers several important advantages:

- One processing step less;
- Faster installation;
- Reduced risk of application errors;
- Greater processing flexibility;
- Lower environmental impact;
- Improved worker safety.

No Strict Primer Timing Windows

Traditional primers create an additional complication:

The adhesive must usually be applied within a strict time window after primer application. This creates logistical challenges, especially on scaffolding or large façade projects.

With TWEHA®® MetalMate This Restriction Disappears, making installation simpler, faster, and more practical.

Better Performance at Low Temperatures

Another important advantage is that TWEHA®® MetalMate can also be processed at Temperatures Below 5°C because no separate primer application is required.

This increases project flexibility under difficult weather conditions.

Why Traditional Primers Have Limitations

Primers are essentially aggressive chemical agents designed to:

- Penetrate the substrate;
- Modify the surface;
- Improve adhesive penetration.

Most primers consist of reactive chemicals dissolved in solvents.

After application:

- The solvent evaporates;
- The active chemicals remain;
- The substrate surface is chemically altered.

This creates a roughened, crater-like surface structure to improve mechanical adhesion.

However, primers also bring disadvantages:

- Additional processing steps;
- Limited processing times;
- Health risks;
- Environmental concerns;
- Greater risk of application mistakes.

Different substrates also require different primers, making the process more complex.

Cleaner, Simpler, Smarter Bonding

By integrating primer functionality directly into the adhesive system, TWEHA®® simplifies aluminum bonding considerably.

Of course, proper pre-cleaning and degreasing with TWEHA®® Cleaner+ remains essential for achieving optimal adhesion performance.

Aesthetic Finishing with TWEHA®® Blacken

For ventilated façade systems where visible aluminum profiles appear behind open joints, TWEHA®® also offers TWEHA®® Blacken.

This specialized black coating creates a clean black finish on visible mill finish aluminum profiles, improving the overall façade appearance.

The Future of Aluminum Bonding

Modern façade construction demands connection systems that combine:

- Durability;
- Flexibility;
- Fast installation;
- Aesthetic freedom;
- Long-term reliability.

At TWEHA®®, our advanced aluminum bonding systems provide exactly that.

Because smarter bonding technology creates stronger, cleaner, and more efficient constructions for the future.

TWEHA®®, 2026